

UTAH FLORA: JUNCACEAE

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ABSTRACT.— A revision of the rush family, Juncaceae is presented for the state of Utah. Included are 28 taxa in two genera. Keys to genera and species are provided, along with detailed descriptions, distributional data, and other comments. No new taxa or combinations are proposed.

This paper is another in a series of works leading to a definitive treatment of the flora of Utah. The rush family as represented in Utah is rather small in comparison to some other families, but plants of the family are abundant throughout mesic and wet places of the state. Floral structures are reduced and uniform, and identification often entails observation of such minute features as tailed appendages on seeds. However, the taxa seem quite well marked and mistakes in identification do not seem so common as in some other families with reduced and uniform floral features, such as Salicaceae, Apiaceae, or Chenopodiaceae.

Members of the family are more or less comparable in palatability to grasses and sedges, and they are abundant enough to be of importance to the grazing of domestic livestock and to big game animals.

As in preceding parts of this series, there are two numbers at or near the end of the discussion of each taxon. The first number, in Arabic numerals, indicates the number of specimens from Utah seen in the preparation of this work. The second number, in Roman numerals, indicates the number of specimens collected by the author from the state.

ACKNOWLEDGMENTS

Appreciation is expressed to the curators of the following herbaria of Utah: Brigham Young University, Provo; Forest Service Herbarium, Ogden; Garrett Herbarium, University of Utah, Salt Lake City; Intermountain Herbarium, Utah State University, Logan. I appreciate the loan of specimens from each of these herbaria. These specimens are the basis of this work.

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JUNCACEAE

Rush Family

Perennial or annual grasslike herbs; stems terete or flattened, not jointed, caespitose or arising singly or few together from rhizomes; leaves sheathing, alternate or all basal, mostly 2-ranked, blades linear, sometimes much reduced or lacking; inflorescence headlike to open paniculate, subtended by an involucre bract; branches, heads, and pedicels often subtended by bractlets; flowers bisexual (ours), sometimes subtended by bracteoles borne at pedicel apices, directly below perianth; perianth much reduced, petals and sepals hardly if at all different and referred to herein as tepals, tepals membranous, rather scalelike, greenish or brownish, 6, an outer and inner set with 3 each; stamens (3) 6; pistil 1; ovary superior, with 1 or 3 chambers; fruit a capsule with 1 or 3 chambers.

11(1). Seeds numerous in each capsule; leaves glabrous, sheaths open; bracteoles subtending flowers entire or lacking *Juncus*

— Seeds 3 per capsule; leaf blades pubescent at least on margins near base except sometimes in *L. parviflora*, sheaths closed; bracteoles subtending flowers entire to lacerate *Luzula*

JUNCUS L. RUSH

Juncus

Perennial or annual grasslike herbs; stems terete or flattened; leaf blades flat, strongly folded, or terete, when terete sometimes hollow with cross membranes at intervals (septate) or reduced to a bristle or lacking; flowers as described in family; seeds numerous, minute, usually apiculate or tailed.

- 1. Plants annual 2
- Plants perennial 3
- 2(1). Plants 0.5–2 cm tall, subscapose; scapose stem with 1 flower; stamens 3; leaves not over 0.5 cm long *J. bryoides*
- Plants 2–30 cm tall, not scapose; inflorescence with 1–20 flowers; stamens 6; leaves 0.5–10 cm long *J. bufonius*
- 3(1). Flowers (1) 2–5 in solitary terminal head; leaves basal or nearly so, hollow, septate; plants densely tufted, without rhizomes, 3–19 cm tall, infrequent in Uinta Mountains *J. trighumis*
- Flowers either more numerous or not in a solitary terminal head or plants otherwise different from above 4
- 4(3). Stems with 0–2 (rarely more) leaf blades; blades borne on lower 1/5 of plant, not hollow, not septate, sheaths sometimes ending in a rudimentary bristle instead of a leaf blade; flowers not in heads but borne singly, each subtended by 2 hyaline bracteoles; rhizomes lacking or short and plants mostly caespitose except in *J. arcticus* 5
- Stems with 2 or more well-developed leafblades, at least uppermost blade borne above lower 1/3 of plant or else hollow and septate; flowers borne in 1 or more heads and not individually subtended by bracteoles; plants mostly with rhizomes (note: *J. compressus* and *J. gerardii* with leafy stems and solitary, bracteolate flowers are keyed both ways) 12
- 5(4). Leaves all reduced to bladeless sheaths, upper ones sometimes with a bristle-tip, this not over 5 mm long; inflorescence with 5–75 or more flowers; seed not tailed 6
- At least uppermost leaf of most stems with a well-developed leaf blade well over 10 mm long, or, if leaves all reduced to bladeless sheaths (*J. drummondii*), inflorescence with only 1–3 flowers and seeds tailed 7
- 6(5). Involucral bract about as long or longer than stem and inflorescence appearing at or below midlength of plant; stems seldom over 1 mm thick, somewhat tufted; plants of Uinta Mountains above 2,950 m, rather rare .. *J. filiformis*
- Involucral bract mostly shorter than stem and inflorescence appearing above midlength of plant; stems often over 1 mm thick, mostly arising singly or few together from robust dark rhizomes; plants widespread *J. arcticus*
- 7(5). Seeds tailed at each end, tails 1/2 as long to longer than body; inflorescence with 1–6 flowers; stem-leaves with blades lacking or reduced to a bristle or uppermost 1(2) with a well-developed blade; plants mostly found above 2,620 m. 8
- Seeds apiculate but not tailed; inflorescence with (1)6–50 or more flowers; some of lower stem-leaves commonly with well-developed blades; plants commonly found below and above 2,620 m 10
- 8(7). Stems with bladeless leaves, uppermost and often lower sheaths tipped with a bristle, this not over 1 cm long; tails of seeds equal to or longer than body; tepals 5–8 mm long; capsules blunt and more or less retuse, equal to or a little shorter than tepals ... *J. drummondii*
- Most of stems with a well-developed leaf-blade on at least uppermost sheath, lower sheaths often tipped with a bristle; tails of seeds equal to or shorter than body; tepals and capsules various 9
- 9(8). Capsules ovoid, retuse at apex; tepals 4–5 (5.5) mm long; anthers less than 1 mm long; filaments longer than anthers *J. hallii*
- Capsules oblong, pointed; tepals 5–8 mm long; anthers 1.5–2 mm long; filaments only about 0.3 mm long *J. parryi*
- 10(8). Tepals, at least outer ones, with incurved or hooded tips, rather obtuse, 1.5–2.5 mm long; uppermost leaf often borne above midlength of stem 13
- Tepals with acute to acuminate erect tips, 3–5 mm long; uppermost leaf borne on lower 1/3 of stem 11
- 11(10). Capsules retuse at apex, completely 3-lobed; panicles mostly less than 2 cm long; tepals with hyaline margins extending to apex of acute tip; plants montane, mostly above 2,380 m *J. confusus*
- Capsules blunt but not retuse, incompletely 3-lobed; panicles various but often over 2 cm long; at least outer tepals with hyaline margins not extending to acuminate or acuminate-attenuate tip; plants found mostly below 2,380 m *J. tenuis*
- 12(4). Flowers borne singly, each subtended by 2 bracteoles; pedicels sometimes also subtended by bractlets; tepals with incurved or hooded tips, 1.5–2.5 mm long 13
- Flowers borne in 1–many heads, not subtended immediately by bracteoles; pedicels usually subtended by bractlets; tepals, at least outer ones, with erect or spreading tips, as short or longer than above 14
- 13(12). Anthers about 3 times longer than filaments; capsule ellipsoid-ovoid, equal or slightly exceeding tepals; plants sometimes over 40 cm tall, known in Utah from a single collection from a hot spring in Salt Lake County *J. gerardii*
- Anthers scarcely longer than filaments; capsule globose-ovoid, distinctly exerted; plants 20–40 cm tall, known from flood plains of Green and Colorado rivers *J. compressus*
- 14(12). Leaf blades flat or strongly folded and appearing flat at least toward base, not terete, not hollow; sheaths with hyaline margins; capsules not exerted beyond tepals 15
- Leaf blades terete and hollow, if only toward tip, then sheaths without hyaline margins and capsules conspicuously exerted beyond tepals 17

- 15(14). Leaves strongly folded, narrow edge oriented toward the flattened stem; scarios margins of sheaths extending well beyond juncture with stem, gradually tapering to inconspicuous auricles or auricles lacking; margins of blade more or less united beyond scarios margins *J. ensifolius*
- Leaf blades flat, flat surface oriented toward terete stem; scarios margins of sheaths not extending beyond juncture with stem 16
- 16(15). Seeds tailed, tails as long or longer than body; tepals granular-papillate on back; heads sometimes with more than 10 flowers; plants known from Duchesne, Wasatch, and Salt Lake counties *J. regellii*
- Seeds apiculate but not tailed; tepals smooth on back; heads with 3–10 flowers; plants widespread *J. longistylis*
- 17(14). Leaf blades folded to enrolled toward base, becoming terete and hollow distally; sheaths without hyaline margins; auricles lacking; capsules conspicuously exceeding tepals; seeds long-tailed; stamens 6; plants rare, from above timberline on Uinta Mountain *J. castaneus*
- Leaf blades terete and hollow from collar and outward, septate; scarios margins of sheaths projected into auricles; capsules not much if any longer than tepals and seeds not tailed or else stamens 3; plants widespread 18
- 18(17). Seeds tailed; stamens 3; capsules conspicuously exceeding tepals; plants known from one collection in Box Elder County... *J. tweedii*
- Seeds not tailed; stamens 6; capsules various; plants widespread 19
- 19(18). Capsules tapered almost from base into a mostly nondehiscent conspicuous stylar beak, often divergent in all directions in mature globose or hemispheric head; heads rarely solitary, greenish or light brown; tepals acuminate or acuminate-subulate; rhizomes sometimes swollen and tuberosus at nodes; plants found mostly below 2,320 m 20
- Capsules rather abruptly narrowed above into a dehiscent short or inconspicuous stylar bank, ascending to slightly spreading in heads, or, if spreading in all directions, then heads solitary; heads light or deep brown to blackish-purple; rhizomes not as above; plants from above and below 2,320 m 21
- 20(19). Auricles 1.5–5 mm long; tepals 4–5 mm long, with rigid long-acuminate or subulate tips; mature heads 10–15 mm wide; capsules shorter or scarcely longer than tepals; stems to 6 mm thick *J. torreyi*
- Auricles 0.25–1 mm long; tepals 2.5–3.5 mm long, acuminate, tips not so rigid as above; mature heads 5–12 mm wide; capsules to ca 1 mm longer than tepals; stems 1–2 mm thick *J. nodosus*
- 21(19). Larger tepals 3–5 mm long or, if smaller, then inflorescence with 1 or rarely 2 heads, equal to or conspicuously exceeding capsules 20
- Tepals 1.5–2.8 mm long, shorter than capsules; inflorescence with (1)4–25 heads 21
- 20(19). Heads 1 or rarely 2, globose or nearly so, with 5–40 or more flowers; anthers 0.5–1 mm long, shorter than filaments; tepals purplish black *J. mertensianus*
- Heads (1)2–13, not or hardly globose, with 3–13 flowers; anthers 1–2 mm long, longer than filaments; tepals brown to purplish black *J. nevadensis*
- 21(19). Outer tepals obtuse, mostly longer than inner ones; branches of inflorescence stiffly erect; capsule rather abruptly rounded at tip; plants of low elevations and montane *J. alpinus*
- Outer tepals acute, about equal to or shorter than inner ones; capsules rather gradually tapering to tip; branches of inflorescence spreading to nearly divaricate; plants rather rare, apparently not montane *J. articulatus*

***Juncus alpinus* Vill.** Northern Rush. Perennial plants 3(5–40) cm tall; stems loosely tufted on creeping rhizomes, with 1–2 leaves mostly borne on lower 1/3 or 1/2; leaves mostly all bearing well-developed blades; scarios margins of sheaths prolonged into auricles, these 0.5–1 mm long; blades terete, hollow, septate, 1–1.5 mm in diameter; involucre bract 1–7(10) cm long, sometimes leaflike; inflorescence 0.8–8.5 cm long, rather openly branched, branches mostly erect or strongly ascending, with (1)3–25 small heads or headlike glomerals; heads 3–4(5) mm long, with 2–6 flowers; bractlets subtending branches and heads scarios; pedicels obsolete or less than 1 mm long; bracteoles lacking; tepals 1.5–2.5 mm long, brownish to dark purple, outer ones usually slightly longer than the usually more obtuse inner ones; stamens 6, filaments ca 0.5 mm long, anthers 0.25–0.5 mm long; styles with stigmas ca 1 mm long; capsules 1-chambered, 2.5–3 mm long, rather abruptly narrowed to a stylar beak to 0.25 mm long. Seeps, bogs, margins of lakes and ponds, and along streams, often on limestone or other basic substrates at 1,524 to 2,800 m in Box Elder, Daggett, Duchesne, Garfield, Kane, Uintah, and Wayne counties; Alaska to Newfoundland and south to Washington, Colorado, and Quebec; 21 (vi). Some specimens are rather difficult to distinguish from those of *J. articulatus*.

***Juncus articulatus* L.** Jointed Rush. Perennial plants 17–36 cm tall; stems loosely to rather densely tufted, from short stout or prolonged rootstocks, with 2–4 leaves, upper leaf often on upper 1/2 to 3/4 of stem; mostly bearing well-developed blades, sheaths with scarious margins prolonged into auricles ca 1 mm long, blades 0.5–2 mm wide, terete, septate; involucre bract 1–3.7 cm long; inflorescence 1.5–7 cm long, openly branched, branches ascending to divaricate, with 4–25 small heads; heads with (2) 5–10 flowers; bractlets subtending branches and heads scarious; pedicels obsolete or less than 1 mm long; bracteoles lacking; tepals 2–2.8 mm long, mostly all acute, equal or inner ones slightly longer than outer ones, greenish or purplish with conspicuous scarious margins, often minutely granular scabrous on back; stamens 6, filaments ca 0.5 mm long, anthers 0.5–0.7 mm long; styles and stigmas ca 1 mm long; capsules 1–chambered, 2.8–3.8 mm long, gradually tapered to a stylar beak to 0.25 mm long; seeds 0.4–0.5 mm long, apiculate. Along streams, sand bars of rivers, around ponds, and in wet lowland meadows at 1,220 to 1,710 m in Grand, San Juan, Tooele, and Utah counties; British Columbia to Newfoundland and south to Arizona and West Virginia, and Eurasia; 5 (i).

***Juncus arcticus* Willd.** Wiregrass [*J. balticus* Willd.; *J. balticus* var. *montanus* Engelm.; *J. balticus* var. *vallicola* Rydb.]. Perennial plants 20–105 cm tall; stems terete or slightly compressed, 1–5 mm in diameter, arising singly, 2–3 together, or rather tightly clustered, from robust dark brown or blackish rhizomes to 5 mm in diameter; leaves reduced to bladeless sheaths, sheaths confined to lower 1/5 of plant, entire or occasionally tipped with a tiny bristle; involucre bract (2.5) 4–23 cm long, appearing as a continuation of stem; inflorescence 0.5–15 cm long, congested and headlike with few (ca 5) flowers to open panicle with up to 75 or more flowers; bractlets subtending branches and pedicels scarious; pedicels nearly obsolete or to 8 mm long; bracteoles subtending flowers ovate or nearly so, scarious; tepals 3.5–5 mm long, acute to acuminate, pale to dark brown, outer ones often a little longer, more sharply pointed and with darker margins than the usually more rounded, often broadly scarious-

margined inner ones; stamens 6, filaments ca 0.5 mm long, anthers 1.4–2.1 mm long; styles and stigmas to ca 3 mm long; capsules 3–4 mm long; seeds ca 0.6–0.8 mm long. Margins of ponds and lakes, along streams and rivers, in alkaline to nonalkaline meadows, seeps, springs, marshes, and swamps at 925 to 2,590 (3,050) m in all Utah counties except Morgan; circumboreal, widespread in western North America, Eurasia; 150 (i). *Juncus arcticus* forms a highly variable complex. It seems best to await further monographic work for disposition of infraspecific taxa.

***Juncus bryoides* F. J. Hermann** Minute Rush. [*J. kelloggii* Engelm. in a broad sense]. Annual plants ca 0.5–2 cm tall; scapose stems capillary, 0.1–0.15 mm thick; leaves basal or nearly so, mostly less than 1/2 as long as stems, flat or channeled, with scarious margins, not over 1 mm wide; inflorescence of a solitary terminal flower, this subtended by mostly 2 scarious bracteoles; tepals 1.5–2 mm long, acute, about equal; stamens 3, filaments ca 0.4 mm long, anthers ca 0.2 mm long; capsules shorter than tepals; seeds 0.3–0.4 mm long, obscurely apiculate. Ponderosa pine, aspen, and mountain brush communities apparently mostly on moist or spring-fed sandy soil or sandstone or quartzite at 2,400 to 2,550 m in Daggett, Salt Lake, Sevier, and Uintah counties; California to western Colorado; 5 (0). This small plant is easily overlooked and is probably more widespread than few collections indicate.

***Juncus bufonius* L.** Toad Rush. [*J. bufonius* var. *occidentalis* F. J. Herm.; *J. sphaerocarpus* misapplied]. Tufted annual plants, 2–30 cm tall, from few to numerous fibrous roots; stems few to many; leaves basal and cauline or all basal in small plants, some of basal ones bladeless, margins of sheaths hyaline but not projected into auricles, blades 0.2–1 mm wide, involute or channeled; involucre bract to 3.5 cm long, filiform and leaflike, or scarious, much reduced and hardly different from bracteoles in small plants; inflorescence 0.6–12 cm long, often 1/4–4/5 the height of plant, with 1–20 flowers; flowers borne singly and sometimes rather remote; bractlets of nodes scarious, often aristate; pedicels obsolete or less than 1 mm long; bracteoles subtending flowers scarious, usually ovate; tepals 3–6(8) mm, lanceolate, acute to acuminate,

inner ones shorter than and not as pointed as outer; stamens 6, filaments 0.7–1 mm long, anthers 0.3–0.8 mm long; styles less than 1 mm long; capsules incompletely 3-loculed, 3–4 mm long, ca 1/2 as long to nearly equalling the tepals, subglobose to cylindrical-ovoid; seeds 0.3–0.5 mm long, scarcely apiculate. Moist or wet soil of rocky drainages, ephemeral pools, along streams and rivers, margins of ponds and lakes, hanging gardens, and wet meadows, in many plant communities at 1,135 to 2,850 m in all Utah counties except Iron; cosmopolitan except in tropics and extreme Arctic; 93 (viii).

***Juncus castaneus* J. E. Sm.** Chestnut Rush. Perennial plants, stems arising singly or 2 together from slender, rather long rhizomes, 7–22 cm tall; leaves extending up to upper 1/3–4/5 of stem, sheaths without hyaline margins, auricles lacking, blades strongly folded below, becoming channeled toward middle, and terete, hollow, and septate toward tip; involucre bract 1.5–3.5 cm long, scarious and broadly expanded below, prolonged into an involute tip; inflorescence 1–7 cm long, of 1–4 compact heads, heads ca 5–10 flowered, bractlets subtending pedicels scarious like the involucre bract but not with a prolonged involute tip; pedicels 2–4 mm long; bracteoles subtending flowers lacking; tepals 4–7 mm long at anthesis, linear-lanceolate, acute or inner ones somewhat obtuse, chestnut-colored or purplish brown; stamens 6, about 1 mm shorter than tepals at late anthesis, filaments ca 3 mm long, anthers ca 1 mm long; styles ca 2–3 mm long; capsules 1-loculed, 6–10 mm long, elongate, well exceeding tepals, gradually tapering into a stylar beak ca 1 mm long; seeds 2.5–4 mm long, strongly tailed, tails longer than body. Wet alpine communities in Wasatch Plateau and Uinta Mountains in Sanpete and Summit counties; circumboreal and south in mountains of western North America to New Mexico; 2 (i). The leaf blades are folded toward base and are thus similar to those of *J. ensifolius*, but sheaths are without scarious margins that are so prominent in those of *J. ensifolius*.

***Juncus compressus* Jacq.** Caespitose perennial plants from thickened short rootstocks and fibrous roots, 20–40 (60) cm tall; leaves on lower 1/2 of or extending well up on stems, scarious margins of sheaths terminating in

scarious aricles, blades 0.5–1.2 mm wide, more or less channeled; involucre bract 2–15 cm long, leaflike; inflorescence 3–15 cm long, congested to open paniculate, with ca 12–80 flowers, these borne singly; bractlets subtending branches of inflorescence similar to but smaller than involucre bract, or upper ones scarious and much reduced; pedicels obsolete or to 3 mm long; bracteoles of flowers scarious, rounded to broadly acute; tepals 1.5–2.2 mm long, slightly coriaceous and incurved at tip, especially outer set; stamens with filaments ca 1 mm long and anthers ca 0.5–0.7 mm long; styles ca 1 mm long; capsules 2–2.5 mm long, subglobose, obtuse, exceeding tepals; seeds ca 0.4 mm long, apiculate at both ends. Sand bars, mud flats, swamps, and riparian communities along flood plain of the Green and Colorado rivers at 1,220 to 1,675 m in Daggett, Emery, Grand, and Uintah counties; Montana to Utah and east to Nova Scotia, and Eurasia, most likely introduced in western United States and probably in the East; 8 (i).

***Juncus confusus* Cov.** Densely caespitose, perennial plants from fibrous roots, 8–52 cm tall; leaves basal or borne on lower 1/4 of stems, upper 2–4 with well-developed blades, these 0.5–1.3 mm wide, mostly narrower than stems, channeled or involute, hyaline margins of sheaths projected into rounded auricles; involucre bract 1–13 cm long, less than 1 mm wide, slender, with a scarious decurrent auricle; inflorescence 0.8–2 cm long, with (1)3–40 flowers, congested but flowers borne singly and not in heads; bractlets subtending pedicels scarious or lowest one similar to but much smaller than the involucre bract; pedicels nearly obsolete or to ca 2 mm long; bracteoles 2 or these subtended by additional smaller ones borne on the pedicel; tepals 3–5 mm long, elliptic-lanceolate or lanceolate, acute to broadly acute, with conspicuous hyaline margins extending to tip, about equal or inner set slightly shorter; stamens to ca 1.7 mm long, anthers 0.5–0.6 mm long; styles ca 1 mm long; capsules 3-loculed, 3–4 mm long, subequal to tepals, retuse at apex; body of seeds ca 0.4 mm long, more or less blunt at apex with a bent apiculate tip from one side. Ponderosa pine, aspen, lodgepole pine, Engelmann spruce, dry and wet meadow, and streamside-willow

communities at (2,070) 2,340 to 3,110 m in Box Elder, Cache, Daggett, Duchesne, Garfield, Iron, Juab, Morgan, Salt Lake, Sanpete, Sevier, Summit, Uintah, Utah, Wasatch, and Washington counties; British Columbia to Saskatchewan and south to California and New Mexico; 50 (xv).

***Juncus drummondii* E. Mey. in Ledeb.**

Densely caespitose perennial plants from fibrous roots, 8–40 cm tall; stems terete; leaves mostly on lower 1/4 of stem, reduced to sheaths or uppermost sheath mostly with a bristle-tip (much reduced blade), this 1–10 mm long or rarely longer, upper sheath slightly bilobed and scarious at apex; involucre bract 1–4 cm long, shorter than or exceeding inflorescence by 2 cm, terete, with scarious decurrent auricles; inflorescence 0.8–2(3) cm long, with (1) 2–3 flowers, flowers borne separately on pedicels 1–15(20) mm long, pedicels often subtended by and partly enveloped in scarious bractlets, lowest bractlet sometimes similar to but shorter than involucre bract, each flower subtended by 2 scarious bracteoles 2–4 mm long, these rounded to broadly acute; tepals 5–8 mm long, equal or outer set slightly longer, narrowly acute; stamens ca 2 mm long, anthers ca 2–3 times longer than filaments; styles ca 2 mm long; capsules 3-loculed, 5–7 mm long, about as long or a little shorter than the sepals, retuse at tip; body of seeds ca 1.5–2 mm long, appendaged on both ends, appendages as long or slightly longer than body. Lodgepole pine, spruce-fir, wet and dry meadow, and alpine communities, in wet to dry rocky places at 2,940 to 3,475 m in Box Elder, Daggett, Duchesne, Garfield, Grand, Juab, Piute, Salt Lake, Sevier, Summit, Uintah, Utah, and Wasatch counties; Rocky Mountains from Alaska to New Mexico; 76 (iv).

***Juncus ensifolius* Wikstr.** Swordleaf Rush.

Perennial plants 21–72 cm tall; stems flattened, arising singly or loosely to rather densely tufted, from creeping rhizomes; leaves clustered on lower 1/2 of stems, but upper one usually borne near or above midlength of stem, strongly folded and flattened, narrow ventral edge facing stem, with broad scarious margins of sheaths extending onto blade, hardly if at all projected into auricles, blades more or less closed above scarious margin, partly to completely septate in closed

portion; involucre bract much reduced to leaflike and up to 5 cm long, but shorter than inflorescence; inflorescence 1–17 cm long, with (2) 3–90 or perhaps more heads, heads light green to nearly black, with 4–25 flowers; bractlets subtending heads and pedicels scarious; pedicels to ca 1 mm long; bracteoles lacking; tepals 2.3–4 mm long, inner ones slightly shorter and slightly less pointed than the acute outer ones; stamens 3 or 6, filaments about equal to anthers, these 0.4–1.3 (1.5) mm long, styles 0.5–1.5 mm long; capsules 3-loculed, rounded toward tip, equal or a little longer than tepals, body of seeds 0.4–0.6 mm long, with or without tailed appendages to 0.2 mm long at either end. There are three varieties as follows:

1. Stamens 3; plants rare in Utah
..... *J. ensifolius* var. *ensifolius*
- Stamens 6; plants common 2
2. Heads (5) 10–60 (90) or perhaps more, mostly 3–8 mm thick, with ca 4–12 flowers; seeds with apiculate tails, or tails rarely lacking (in Utah specimens); plants common in Canyonlands section of the state, and wholly intergrading into the following variety throughout much of state
..... *J. ensifolius* var. *brunnescens*
- Heads 2–10 or rarely more, mostly 8–15 mm thick, with ca 10–15(25) flowers; seeds with or without apiculate tails; plants state wide and over a wide elevational range, but more common in mountains and in Great Basin than preceding variety
..... *J. ensifolius* var. *montanus*

Var. *brunnescens* (Rydb.) Cronq. [*J. brunnescens* Rydb.; *J. saximontanus* f. *brunnescens* (Rydb) F. J. Hermann; *J. tracyi* f. *utahensis* (R. F. Martin) F. J. Hermann; *J. utahensis* R. F. Martin]. Along rivers, streams, ditch banks, around seeps, springs, ponds, lakes, and in hanging gardens, marshes, meadows, and bogs at 1,065 to 2,450 (2,740) m in Beaver, Duchesne, Emery, Garfield, Grand, Iron, Kane, Rich, San Juan, Sanpete, Sevier, Summit, Uintah, Utah, Washington, and Wayne counties, and intergrading into var. *montanus* in nearly all counties of state; nearly throughout range of var. *montanus*, but more common southward especially in Arizona and the only phase in Texas; 145 (v). See discussion under var. *montanus*.

Var. *ensifolius* Wet places in mountains in Daggett, Salt Lake, Tooele, and Uintah counties; Alaska to northern Mexico and east to Alberta and Arizona, 4 (i). The few specimens

from isolated stations in Utah with only 3 stamens per flower could be nothing more than odd specimens of var. *montanus*. However, to north of our area this is a common phase.

Var. *montanus* (Engelm.) C. L. Hitchc. [*J. xiphoides* var. *montanus* Engelm.; *J. saximontanus* A. Nels.; *J. tracyi* Rydb.]. In meadows, along streams and rivers, about seeps and springs and other wet places at (853) 1,830 to 3,100 m in all counties of state; Alaska to southern California and east to Saskatchewan and New Mexico; 128 (v). In the study of numerous specimens seen from the state, the following trends were noted: (1) Most plants of the lower elevations in the Canyonlands Section are rather easily assigned to var. *brunnescens*, and they mostly have apiculate-tailed seeds. (2) Plants of the Great Basin are often referable to var. *montanus*, and they have apiculate but rarely tailed seeds, (3) Throughout the plateaus and mountains that run through the center of the state and in the Uinta Mountains, there are plants of both varieties and numerous intermediate plants, and seeds are commonly with or without tails in both varieties as well as in intermediate plants. Color phases of the inflorescence (pale green to purplish black) are also found in both varieties and in intermediate plants. Perhaps outside Utah the picture is somewhat clearer, but Utah seems to be near the center of where the two varieties overlap. More than 25% of the Utah specimens examined appeared to be intermediate.

***Juncus filiformis* L.** Plants perennial, 5–40 cm tall; stems arising singly or in tufts from creeping rhizomes, terete, rarely over 1 mm in diameter; leaves reduced to bladeless sheaths, uppermost one often tipped with a tiny bristle, confined to lower 1/5 of plant; involucre bract 10–27 cm long, appearing as a continuation of stem, as long or to over 4 times longer than stem; inflorescence appearing lateral and on lower 1/2 to 1/10 of plant, 0.5–1(2) cm long, compact, with ca 5–20 flowers, flowers borne singly; bractlets subtending branches and pedicels scarious, lower ones sometimes aristate; pedicels nearly obsolete or to 4 mm long; bracteoles scarious, ovate or oblong; tepals 3–4.5 mm long, greenish, lanceolate, acute to acuminate, subequal or outer ones slightly longer; stamens 6, filaments ca 0.6 mm, anthers 0.4–0.6 mm long;

styles and stigmas less than 1 mm long; capsules 3-loculed, ca 2–3 mm long, greenish, ovoid to obovoid, abruptly tapered to a short stylar beak; seeds 0.4–0.6 mm long, minutely winged-apiculate at both ends. Wet subalpine meadows and along streams in Uinta Mountains at 2,990 to 3,200 m in Summit, Uintah, and Wasatch counties; Alaska to Labrador and south to Utah and West Virginia; 10 (iv).

***Juncus gerardii* Lois.** Black Grass; Mud Rush. Perennial plants 15–80 cm tall; stems somewhat tufted on slender dark rhizomes; leaves rather scattered on stems, upper ones usually borne on upper 1/2 of stem, lower ones bladeless or with reduced blades, upper blades flat, 1.5–3 mm wide; inflorescence with several to many flowers; flowers borne singly and subtended by scarious bracteoles, nearly sessile to long-pedicelled; tepals 2–3.5 mm long, dark brown with a greenish midstripe, blunt and usually hooded at tip; stamens 6, anthers ca 1.5 mm long, ca 2–3 times longer than filaments; capsules ovoid to obovoid, rounded, about equaling but a little shorter than tepals; seeds 0.5–0.6 mm long, slightly apiculate at tapered end, nearly truncate-apiculate at other end. Becks Hot Spring in Salt Lake County (Flowers sn 24 Sept. 1924 UT). The population is not likely existing because the area is now part of Interstate 15; Eurasia, Atlantic and Pacific coasts in North America, and sporadic inland; 1(0).

***Juncus hallii* Engelm.** Halls Rush. Perennial caespitose plants 20–40 cm tall, from fibrous roots, rhizomes lacking; stems terete, to ca 1.5 mm thick; leaves basal and on lower 1/5 of plant, usually only uppermost cauline leaf bearing a well-developed blade, lower stemleaves bladeless or tipped with a short bristle, innovations sometimes with well-developed blades; blades terete, upper side more or less channeled toward base, not or inconspicuously channeled toward tip, less than 1 mm wide; involucre bract 0.7–2.5 (7.5) cm long, scarious and caudate to awned, or elongate and leaflike, with scarious margins projected into auricles; inflorescence to 1.7 cm long, with (2) 3–6 flowers; flowers rather congested, but borne singly; bractlets subtending pedicels scarious, attenuate to caudate; pedicels 1–8 mm long; bracteoles subtending flowers hyaline, ovate to nearly orbicular; tepals 4–5(5.5) mm long, subequal or inner

ones a little shorter, lanceolate, acute, usually with greenish centers flanked by purple and with hyaline margins; stamens 6, filaments 1–1.5 mm long, anthers 0.5–0.7 mm long; styles and stigmas not over 1 mm long; capsules 3-loculed, equaling or ca 1 mm longer than tepals, triquetrous, retuse at apex, dark brown to purplish black; body of seeds 0.6–0.7 mm long, tailed at each end, tails ca 1/2 as long as body. Dry, wet, and boggy meadows, margins of ponds and lakes, and along streams at 2,956 to 3,350 m in Beaver, Daggett, Duchesne, Garfield, Summit, Uintah, and Wasatch counties; Montana to Colorado and Utah; 13 (xi).

***Juncus longistylis* Torr. in Emory** Longstyle Rush. Perennial plants 20–63 cm tall; stems arising singly or few together from creeping rhizomes, terete; leaves somewhat crowded on lower 1/2 of stem, but uppermost one often on upper 1/2–3/4 of stem, scarious margins of sheaths prolonged into auricles to ca 1 mm long, blades flat, not hollow, not septate, 1–3 mm wide; involucrel bract 1–4 cm long, about equaling or shorter than inflorescence, mostly scarious, rarely leaflike, narrowly attenuate to caudate; inflorescence 1–7.5 cm long, usually with (1) 3–13 heads, heads with 3–10 flowers; bractlets subtending heads and pedicels scarious, acute to caudate; pedicels to ca 2 mm long, concealed in scarious bractlets; tepals (4)5–6 mm long, acute to acuminate, often purplish with greenish center and broad whitish or silvery hyaline margins; stamens 6, filaments 0.5–1 mm long, anthers (1) 1.3–2 mm long; styles 1–2 mm long; stigmas ca 2 mm long; capsules 3-loculed, shorter than or rarely equaling tepals, rather abruptly tapered to or retuse at stylar beak, brownish or purplish black; seeds ca 0.5 mm long, apiculate at each end. Wet meadows, along streams and rivers, about seeps and springs and other wet places, occasionally in alkaline places at 1,380 to 3,350 m in Box Elder, Cache, Daggett, Duchesne, Emery, Garfield, Grand, Kane, Millard, Morgan, Salt Lake, San Juan, Sanpete, Sevier, Summit, Tooele, Uintah, Utah, Wasatch, and Wayne counties; southern Canada, Washington to South Dakota and south to California and New Mexico; 100 (viii).

***Juncus mertensianus* Bong.** Mertens Rush. Perennial plants 13–42 cm tall; stems arising

singly or loosely to tightly clustered on long creeping or short rhizomes, rhizomes sometimes short and stout and plants caespitose with numerous fibrous roots; leaves basal and on upper 1/4–3/4 or higher on stems, scarious margins of sheaths projected into ligulelike auricles 0.5–2 mm long; blades terete, channeled above, hollow, septate, 0.5–2 mm wide when pressed; involucrel bract 0.8–3.2 cm long, rarely leaflike, often caudate; inflorescence 0.5–1.5 (3.5) cm long, with 1 (2) head(s); heads with 5–40 or more flowers, to ca 1.5 cm thick; bractlets subtending heads and pedicels scarious, acute to caudate; pedicels to ca 1 mm long; bracteoles lacking; tepals 2.5–4 mm long, acute to acuminate, blackish purple; stamens 6, filaments 1–1.3 mm long, anthers 0.5–1 mm long, shorter than filaments; styles to 1 mm long; stigmas to 1 mm long; capsules 1-chambered, triquetrous, slightly to conspicuously shorter than tepals, abruptly tapered to or slightly retuse at stylar beak, often as blackish purple as tepals; seeds 0.5–0.7 mm long, apiculate but hardly tailed. Wet meadows, along streams, about seeps and springs, margins of lakes and ponds, and Engelmann spruce–lodgepole pine, and tundra communities at 2,435 to 3,415 m in Box Elder, Cache, Duchesne, Garfield, Iron, Juab, Piute, Salt Lake, San Juan, Sanpete, Sevier, Summit, Uintah, Utah, and Wasatch counties; Alaska and Yukon south to southern California and South Dakota; 83 (vi).

***Juncus nevadensis* Wats.** Nevada Rush. [*J. badius* Suksd.]. Perennial plants 12–35 (53) cm tall; stems more or less terete, arising singly or a few together from creeping rhizomes; leaves basal and on upper 1/4–3/4 or higher on stems, with well-developed blades, scarious margins of sheaths projected into ligulelike auricles 1.5–3 mm long, blades terete, hollow, septate, somewhat channeled above, 0.5–2 mm wide; involucrel bract 1–3(8.5) cm long, bractlike to leaflike, seldom much exceeding inflorescence; inflorescence 1–8 cm long, with (1) 2–13 heads, heads with (3)6–13 or more flowers; bractlets subtending heads membranous, attenuate to caudate; pedicels to ca 1 mm long; bracteoles lacking; tepals (3) 3.5–5 mm long, brown to purplish black; anthers 1–2 mm long, longer than filaments; styles to 3 mm long, stigmas 1–2 mm long; capsules 1-loculed, equal to or

conspicuously shorter than tepals, triquetrous, rounded or rarely slightly retuse at apex; seeds 0.5–0.6 mm long, apiculate but not tailed. Dry meadow, wet meadow, silver sagebrush-meadow, and lodgepole pine communities at 2,286 to 3,050 m in Box Elder, Cache, Daggett, Duchesne, Emery, Garfield, Grand, Kane, Rich, Sanpete, Summit, Uintah, Wasatch, and Washington counties; southern British Columbia and Alberta south to California and New Mexico; 43 (xvii). The inflorescence is sometimes similar to those of *J. ensifolius* and *J. longistylis*, and plants of these taxa are sometimes confused. The leaves are different in each of these. Occasional plants with only 1 or 2 heads are rather easily mistaken for those of *J. mertensianus*.

Juncus nodosus L. Jointed Rush. Perennial plants 17–58 cm tall; stems terete, 1–2 mm thick, arising singly to densely clustered on creeping rhizomes, rhizomes sometimes with small tuberlike segments; leaves usually extending well up stems, those of stem with well-developed blades, those of innovations often without blades, scarios margins of sheaths prolonged into short auricles 0.25–1.0 mm long, blades terete or channeled above, hollow, septate, 0.5–1.5 mm wide when pressed; involucre bract 2.5–12 cm long, more or less leaflike; inflorescence 1.5–7 cm long, congested or rather open, with 3–12 globose or nearly globose heads; heads sessile or pedunculate, with (5) 10–25 flowers, 5–12 mm wide, flowers widely spreading to divergent; bractlets subtending heads scarios, acute to cuspidate; pedicels to ca 1 mm long; tepals 2.5–3.5 mm long, subequal, acuminate, acuminate tips shorter than and not so rigid as in those of *J. torreyi*; stamens 6, filaments ca 0.8 mm long, anthers 0.6–0.8 mm long; styles to about 3 mm long, stigmas ca 1 mm long; capsules incompletely 3-loculed, to ca 1 mm longer than tepals, slender, gradually prolonged into a tardily dehiscent stylar beak, sharply triangular in cross section; seeds 0.4–0.5 mm long, apiculate. Wetlands along streams and rivers and in wet and boggy meadows at (1,250) 1,640 to 2,320 m in Cache, Duchesne, Garfield, Piute, Rich, Summit, Uintah, Washington, and Wayne counties; southern Canada and Northern United States, south in West to California and Texas; 36 (xiii).

Juncus parryi Engelm. Parrys Rush. Perennial caespitose plants (10)15–30 cm tall, from fibrous roots, lacking rhizomes; stems terete, about 1 mm thick; leaves basal and borne on lower 1/5 of stems, usually only uppermost one with a well-developed blade, lower sheaths usually tipped with a bristle or much reduced blade, and uppermost one sometimes reduced on a few of the stems, scarios margins of sheaths barely prolonged into auricles less than 0.5 mm long; blades less than 1 mm thick, terete, channeled to strongly involute below, obscurely channeled above, not septate; involucre bract 1.5–6(9) cm long, leaflike, terete, more or less simulating a continuation of stem, often auriculate; inflorescence 0.7–2.2 cm long, with 1–4 flowers, flowers borne singly; bractlets subtending pedicels scarios, acute to caudate, or one of them often similar to involucre bract but smaller; pedicels 1–20 mm long, abaxial ones often much longer than adaxial; bracteoles subtending tepals ovate to lance-ovate, rounded to acute or acuminate-attenuate; tepals 5–8 mm long, inner ones to 1 mm shorter than outer and somewhat less pointed and more scarios; stamens 6, filaments ca 0.3 mm long, anthers 1.5–2 mm long; styles ca 1.5 mm long, stigmas to 3.5 mm long; capsules a little shorter to a little longer than tepals; body of seeds 0.6–0.7 mm long, with tails a little shorter than or to 0.1 mm longer than body. Engelmann spruce, lodgepole pine, meadow, and alpine communities, on wet to dry rocky ground, sometimes in rocky snowflush areas at 2,620 to 3,420 m in Cache, Duchesne, Iron, Juab, Salt Lake, Summit, Uintah, and Wasatch counties; British Columbia to Alberta and south to California and Utah; 50 (v).

Juncus regelii Buch. Regels Rush. [*J. jonesii* Rydb.]. Perennial plants 10–60 cm tall, stems arising singly or few together from creeping rhizomes; leaves basal and extending well up on stems, scarios margins of sheaths prolonged into inconspicuous or short auricles; blades flat, 2–4 mm wide, neither hollow nor septate; involucre bract 1–4 cm long; inflorescence with 1–5 globose or hemispherical heads, heads 8–20 mm across; bractlets subtending heads scarios; bracteoles lacking; pedicels ca 1–2 mm long; tepals 4–6 mm long, papillose-roughened on back,

with a greenish midstripe flanked by dark brown and with scarios margins, inner ones slightly shorter and slightly less pointed than outer ones; stamens 6, anthers 1–1.5 mm long, subequal to filaments; capsules 3-loculed subequal to tepals, oblong-ovoid, truncate to retuse; body of seeds about 0.5 mm long, tailed at each end, tails about as long or longer than body. Meadows and along streams at 2,750 to 3,060 m in Duchesne, Salt Lake, and Wasatch counties; southern Washington to northern California and east to Montana and Utah; 8 (i). Much like *J. longistylis* but distinct in tailed seeds and more or less marked by papillose-roughened tepals.

***Juncus tenuis* Willd.** Poverty Rush. [*J. dudleyi* Wiegand; *J. interior* Wiegand; *J. tenuis* var. *dudleyi* (Wiegand) F. J. Hermann; *J. tenuis* var. *congestus* Engelm.] Perennial, caespitose plants 22–65 cm tall, with fibrous roots; rhizomes lacking; stems terete, to 1.8 mm wide; leaves basal and cauline, borne on lower 1/5 of plant, those of stem mostly with well-developed blades, some of the basal ones with blades reduced to bristles, scarios margins of sheaths projected into auricles to ca 0.75 mm long; blades flat but soon moderately to strongly involute, not hollow, not septate, to ca 2 mm wide; involucre bract 2–18 cm long, leaflike; inflorescence (0.7)1.5–8.5 cm long, congested to rather open, with (4) 10–50 or more flowers, flowers borne singly; bractlets subtending branches and pedicels scarios, caudate-acuminate or awned, or lower ones leaflike and similar to involucre bract; pedicels obsolete or to 5 mm long; bracteoles subtending tepals scarios, ovate to lanceolate, acute to caudate; tepals 4–5 mm long, subequal or outer ones a little longer than inner, outer ones narrowly acuminate or acuminate-attenuate with hyaline margins mostly not extending on to acuminate tip, inner ones mostly acute to slightly acuminate with hyaline margins often extending to tip; stamens 6, filaments 0.6–1 mm long, anthers 0.5–0.8 mm long; styles and stigmas ca 1.5 mm long; capsules imperfectly 3-loculed, 1–2 mm shorter than tepals, obtuse to truncate; body of seeds 0.3–0.4 mm long, with apiculate ends to about 0.1 mm long. Along streams, washes, ditchbanks, rivers, margins of ponds and reservoirs, about seeps and springs, and in meadows and hanging gardens

at 1,135 to 2,380 m in Cache, Daggett, Duchesne, Garfield, Grand, Millard, Rich, San Juan, Uintah, Utah, Wasatch, Washington, and Wayne counties; widespread in North America and introduced in temperate regions elsewhere in world; 41 (iv). Three intergradient phases can be seen in our plants (var. *dudleyi* with cartilaginous, often yellow to brown auricles about 0.5 mm long; vars. *congestus* and *tenuis* with membranous, usually greenish or whitish auricles often over 0.5 mm long, the former with congested panicles mostly less than 3 cm long, the latter with open panicles mostly over 3 cm long). The morphological differences are minor at best, and the taxa are more or less sympatric. Variety *tenuis* does seem to be more common in the southern half of the state. (Perhaps the recognition of these varieties serves more to waste time than for any important purpose.)

***Juncus torreyi* Cov.** Torreys Rush. Perennial plants (10) 20–80 (100) cm tall; stems terete, to 6 mm in diameter near base, arising singly or a few together from robust creeping rhizomes, rhizomes often with swollen tuberlike segments; leaves well distributed up stem, scarios margins of sheaths prolonged into auricles, (1.5) 2–5 mm long; blades terete sometimes channeled on upper side, hollow, septate, 1–3 mm thick; involucre bract 1.5–17 cm long, more or less leaflike; inflorescence 1.5–7 cm long, congested, with (1) 3–13 more or less globose and sometimes burlike heads, heads 6–15 mm across, with 10–50 or more flowers, flowers widely spreading, and some usually reflexed; pedicels short and hidden in compact heads; bracteoles lacking; tepals 4–5 mm long, or inner ones slightly shorter, long-acuminate and rigid at tip; stamens 6, filaments 0.7–1 mm long, anthers 0.5–0.8 mm long; styles ca 0.25 mm long, stigmas ca 1 mm long; capsules incompletely 3-loculed, slender, triquetrous, equal to or slightly longer than tepals, slender stylar beak tardily dehiscent; seeds 0.4–0.5 mm long, apiculate but not tailed. Along streams, rivers, washes, and ditchbanks, at margins of ponds and lakes, about seeps and springs, and in saline or alkaline moist to wet meadows, marshes, and swamps at 850 to 2,010 m in all Utah counties except Iron, Millard, Piute, Summit, and Wasatch; southern Canada to northern Mexico; 112 (iv).

Juncus triglumis L. Three flowered Rush. [*J. albescens* Fern.]. Perennial plants 4–19 cm tall, densely caespitose; leaves basal or on lower 1/4 of stems, those of stem with well-developed blades, scarios margins of sheaths projected into auricles to about 0.75 mm long; blades about 0.5 mm wide, hollow, septate; involucre bract 5–10 mm long, often purplish; inflorescence a solitary head, this 5–8 mm long, with (1)2–5 flowers; bractlets subtending pedicels similar to but somewhat smaller than involucre bract; pedicels to ca 1 mm long; tepals 3–4 mm long, acute, cream, yellowish, or greenish yellow, and often marked with purple; stamens 6, as long as tepals or ca 1 mm shorter, filaments to 2 mm long, anthers 0.5–0.8 mm long; stigmas and styles about 1 mm long; capsules shorter or about 1 mm longer than tepals, abruptly tapered to blunt or subtruncate at tip, blackish purple; trigonous-cylindric body of seeds ca 0.75–1 mm long, tailed at both ends, each tail ca 1/2 to as long as body, more or less flattened, scarios. Wet meadows and bogs at 2,800 to 3,810 m in Uinta Mountains in Daggett, Duchesne, Summit, and Uintah counties; circumboreal, south in Rocky Mountains to New Mexico; 10 (v). Utah plants are referable to var. *albescens* Lange.

Juncus tweedyi Rydb. [*J. canadensis* var. *kuntzei* Buchenau]. Perennial plants 20–40 cm tall, stems clustered, terete; rhizomes apparently lacking; leaves basal and cauline, scarios margins of sheath projected into auricles (0.5)1–2 mm long; blades 1–2.5 mm thick, terete or nearly so, hollow, septate; involucre bract shorter than or somewhat longer than inflorescence; inflorescence with 2–8 heads, these with 3–8 flowers, 3–8 mm wide, brown; bractlets subtending heads and pedicels scarios; bracteoles lacking; tepals 3–4 mm long gradually acute, inner ones equal to or a little longer than outer; stamens 3, anthers 0.5–0.7 mm long, shorter than filaments; capsule slightly longer than tepals, triquetrous, more or less acute, imperfectly 3-loculed; seeds cylindrical with tails ca 1 mm long at each end. Near Corinne in Box Elder County (Kuntze 3133, NY). Wet places about hot springs, Yellowstone National Park, Wyoming; 0 (0).

LUZULA DC. WOODRUSH

Perennial grasslike herbs generally with long spreading hairs along margins of leaf

blades, at least when young; leaves sheathing, sheaths closed, blades flat; inflorescence headlike or spicate to open paniculate; flowers subtended by bracteoles; tepals 6; stamens 6; capsules 1-loculed, with 3 seeds, dehiscent along midribs of carpels; seeds with or without caruncles, sometimes comose with extremely fine hairs.

1. Inflorescence an open panicle, panicle sometimes drooping; leaves glabrous or nearly so at maturity, blades 3–11 mm wide; plants 27–77 cm tall *L. parviflora*
- Inflorescence of few to several congested or remote spikes or spikelike racemes, sometimes headlike; margins of leaves pubescent with long hairs especially near collar, 1–6 mm wide; plants 5–42 cm tall 2
2. Flowers borne in a terminal compound spikelike or headlike inflorescence; leaves 1–3 mm wide; seeds without or with an inconspicuous caruncle; plants widespread *L. spicata*
- Inflorescence with 1 or more lateral spikes, some of lateral ones often borne on peduncles to 3(5.5) cm long; leaves 2–6 mm wide; seeds with a conspicuous caruncle; plants known from Uinta Mountains *L. campestris*

Luzula campestris (L.) DC in Lam. & DC. Hairy Woodrush. [*Juncus campestris* L.; *L. multiflora* (Retz.) Lej.; *L. intermedia* (Thuill.) A. Nels.] Plants 13–42 cm tall; stems more or less tufted; leaves basal and cauline, blades flat, 2–6 mm wide, margins with scattered to moderately dense villose hairs ca 2–7 mm long or longer; involucre bract 3–9 mm long, leaflike; some bractlets subtending branches and peduncles leaflike, others scarios; inflorescence 1.5–5 cm long, usually conspicuously branched, with 3–12 spikes; spikes 5–12 mm long, sessile or on peduncles to 3 (5.5) cm long, with 5–15 or more flowers; bracteoles subtending flowers hyaline, entire or ciliate to fringed; tepals 2–3.5 mm long, greenish to brownish, acute or acuminate to scarcely caudate; anthers ca 0.5–1 mm long, filaments about equal anthers; capsules equal to or shorter than tepals; seeds 1.4–1.7 mm long, with a whitish caruncle ca 0.3–0.6 mm long. Lodgepole pine, Engelmann spruce, and meadow communities at 2,440 to 3,110 m in Uinta Mountains in Daggett, Duchesne, Summit, Uintah, and Wasatch counties; widespread in temperate regions of world; 10 (vii). Utah plants apparently belong to var. *multiflora* (Ehrh.) Celak.

Luzula parviflora (Ehrh.) Desv. Millet Woodrush. [*Juncus parviflorus* Ehrh.; *L. wahlenbergii* Rupr. misapplied] Plants 27–77 cm tall; stems solitary or few together from short rhizomes and fibrous roots; leaves basal and cauline, glabrous or with a few scattered long-villose hairs especially near collar, blades flat, 2–11 mm wide; involucre bract scarious and as short as 1 cm or leaflike and to 4(7) cm long, shorter than inflorescence, sometimes sheathing at base for up to 1 cm; inflorescence 3.5–16 cm long, open-paniculate, with slender flexuous branches; bractlets subtending branches mostly scarious, sometimes frimbriate toward apex; flowers borne singly on slender pedicels to 10 mm long or 2–3 together on short pedicels; bracteoles subtending flowers hyaline, ovate-acute, entire to incised; tepals 1.5–2.5 mm long, brownish and partly hyaline, acute to acuminate, subequal; anthers 0.3–0.4, filaments ca 0.5 mm long; capsules slightly longer than tepals, blackish purple, shiny; seeds 1.2 mm long, with obsolete or inconspicuous caruncles at each end. Ponderosa pine, aspen, lodgepole pine, spruce-fir, willow-streamside, and wet meadow communities at 2,300 to 3,475 m in Beaver, Box Elder, Carbon, Daggett, Duchesne, Garfield, Grand, Iron, Juab, Piute, Salt Lake, San Juan, Sanpete, Sevier, Summit, Uintah, and Wasatch counties; circumboreal, extending south in western North America to California and New Mexico; 84 (v).

Luzula spicata (L.) DC. Spike Woodrush. Plants 5–40 cm tall; stems more or less caespitose from fibrous roots, rhizomes apparently lacking; leaves basal and cauline, blades flat and 1–3 mm wide or involute and to only 0.5 mm wide, margins with scattered to moderately dense long-villose hairs; involucre bract 0.7–4 cm long, bractlike or occasionally leaflike, shorter than or equal to inflorescence or occasionally longer; inflorescence 1–3 cm long often nodding, of ca 4–10 or perhaps more sessile or subsessile heads or short spikes that are congested into a continuous or basally interrupted compound spike, individual heads or spikes with few to several flowers; bractlets subtending spikes or heads scarious and bractlike, or rarely leaflike; bracteoles subtending flowers scarious, fimbriate-ciliate, acuminate-caudate; tepals 2–3 mm long, dark brown or partly hyaline, acuminate or acuminate caudate, inner ones a little shorter than outer ones; anthers 0.3–0.5 mm long, ca 1/2 as long or equal to filaments; capsules a little shorter than tepals; seeds 1–1.3 mm long, caruncle obsolete or inconspicuous, not over 0.2 mm long. Lodgepole pine, spruce, fir, dry meadow, wet meadow, streamside-meadow, alpine tundra, and rarely aspen and oak-ponderosa pine communities, also in talus and fell fields at 2,470 to 3,810 m in Daggett, Duchesne, Grand, Juab, Piute, Salt Lake, San Juan, Summit, Tooele, and Uintah counties; circumboreal, south in western North America to California and Arizona; 65 (vi).